



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE

United States Patent and Trademark Office

Address: COMMISSIONER FOR PATENTS

P.O. Box 1450

Alexandria, Virginia 22313-1450

www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/589,436	04/25/2007	Naomitsu Nishihata	NISH.0006-US	9872
7066	7590	12/08/2009		
REED SMITH LLP				
2500 ONE LIBERTY PLACE				
1650 MARKET STREET				
PHILADELPHIA, PA 19103				
EXAMINER				
FERGUSON, LAWRENCE D				
ART UNIT		PAPER NUMBER		
1794				
MAIL DATE		DELIVERY MODE		
12/08/2009		PAPER		

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/589,436

Applicant(s)

NISHIHATA ET AL.

Examiner

Lawrence D. Ferguson

Art Unit

1794

Period for Reply -- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 13 August 2009.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-15 and 18-21 is/are pending in the application.
- 4a) Of the above claim(s) 19 and 20 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-15, 18 and 21 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB-06)
Paper No(s)/Mail Date _____

- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Response to Amendment

1. This action is in response to the amendment filed August 13, 2009.

Applicant amended claims 1, 9-11 and 15, cancelled claims 16-17 and added claim 21 rendering claims 1-15 and 18-21 pending with claims 19-20 withdrawn as a non-elected invention.

2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claim Rejections – 35 USC § 103(a)

3. Claims 1-15, 18 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nishihata et al. (WO 00/343369).

Nishihata discloses a resin composition comprising 40 to 98.5 wt% of a thermoplastic resin, 1 to 40 wt% of a carbon precursor having a volume resistivity of 10^2 to 10^{10} Ωcm and 0.5 to 30 wt% of at least one conductive filler having a volume resistivity lower than 10^2 Ωcm (page 13, lines 13-26 and page 14, lines 1-20). Nishihata further discloses the composition can be formed or molded into various shapes and can be applied to a wide variety of fields including the field of machining (page 29, lines 13-

25 and page 31, lines 11-20). Because the reference discloses the composition can be formed or molded into various shapes in the field of machining, it is expected for the various shapes to include a stock shape for machining. The composition has a surface resistivity of 10^5 to $10^{12}\Omega$ (page 26, lines 17-19). Although Nishihata does not disclose the exact thickness of the article, because the composition can be formed into various shapes, it would have been obvious to one of ordinary skill in the art for the article to be formed or molded into a shape having a thickness not smaller than 4mm. Given the teachings of Nishihata, including a composition that can be formed into various shapes, it would have been obvious to one of ordinary skill in the art, to determine the optimum thickness of the molded article. It also would have been obvious to one of ordinary skill in the art to optimize the thickness of the article, which affects the durability of the article, since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. *In re Boesch*, 617 USPQ 215 (CCPA 1980), as in claim 1.

In claim 1, the newly added phrases, "produced by a process which comprises extruding and solidifying" and "wherein the process for producing the extruded comprises: a step of feeding the resin composition to an extrusion forming machine...(ii) to solidify the extruded product" introduces process limitations to the product claim. For purposes of examination, product-by-process claims are not limited to the manipulation of the recited steps, only the structure implied by the steps. See MPEP 2113. In the present case, the recited steps imply a structure having a resin composition comprising 30 to 94% by mass of a thermoplastic resin (A), 5 to 40% by

mass of a carbon precursor (B) having a volume resistivity of 10^2 to 10^{10} Ωcm and 1 to 30% by mass of a conductive filler (C) having a volume resistivity lower than 10^2 Ωcm . The reference suggests such a product because Nishihata discloses a resin composition comprising 40 to 98.5 wt% of a thermoplastic resin, 1 to 40 wt% of a carbon precursor having a volume resistivity of 10^2 to 10^{10} Ωcm and 0.5 to 30 wt% of at least one conductive filler having a volume resistivity lower than 10^2 Ωcm (page 13, lines 13-26 and page 14, lines 1-20).

Concerning claims 2-4, the thermoplastic resin can be a thermoplastic polyester, such as polybutylene terephthalate or polyethylene terephthalate (page 14, lines 1-10), which instant claim 3 defines as having a melting point of at least 220°C and also discloses the thermoplastic polyester can be poly(phenylene ether) (page 14, lines 1-11) which instant claim 4 defines as having a glass transition temperature of at least 170°C .

Concerning claim 5, the thermoplastic resin can be a poly(ether ether ketone) (page 14, lines 1-14).

Concerning claim 6, the thermoplastic resin can be a mixture of at least two thermoplastic resins (page 14, lines 1-20 and page 15, lines 13-14).

Concerning claims 7-8, the synthetic resins, such as poly(ether ether ketone) and poly(ether imide) can be combined (page 14, lines 13-17 and page 15, lines 13-14) which is interpreted as being combined in a ratio of 50:50.

Concerning claim 9, the synthetic resins, such as poly(phenylene sulfide) and poly(ether imide) can be combined (page 14, lines 13-17 and page 15, lines 13-14) which is interpreted as being combined in a ratio of 50:50.

Concerning claim 10, the synthetic resins, such as poly(ether ether ketone) and poly(phenylene sulfide) can be combined (page 14, lines 13-17 and page 15, lines 13-14) which is interpreted as being combined in a ratio of 50:50.

Concerning claim 11, the synthetic resins, such as poly(ether ether ketone), poly(phenylene sulfide) and poly(ether imide) can be combined (page 14, lines 13-17 and page 15, lines 13-14) which is interpreted as being combined in a ratio of 50:50, where poly(ether ether ketone) and poly(phenylene sulfide) have a combined ratio in comparison to poly(ether imide) due to Nishihata discloses the resins can be in any combination.

Concerning claim 12, the carbon precursor can have a carbon content of 80 to 97 wt% (page 16, lines 20-23).

Concerning claim 13, carbon fiber can be used as a conductive filler (page 20, lines 1-8).

Concerning claim 14, the carbon fiber is a polyacrylonitrile or pitch based carbon fiber (page 20, lines 1-8).

Concerning claim 15, Nishihata discloses a resin composition comprising 40 to 98.5 wt% of a thermoplastic resin, 1 to 40 wt% of a carbon precursor and 0.5 to 30 wt% of at least one conductive filler (page 13, lines 13-26 and page 14, lines 1-20).

Concerning claim 18, Nishihata discloses the article can be molded into a plate (page 38, lines 10-21). Although Nishihata does not disclose the exact thickness or diameter of the article, because the composition can be formed into various shapes, it would have been obvious to one of ordinary skill in the art for the article to be formed or molded into a shape having a thickness exceeding 4 mm and a diameter exceeding 4mm. Given the teachings of Nishihata, including a composition that can be formed into various shapes, it would have been obvious to one of ordinary skill in the art, to determine the optimum thickness of the molded article. It also would have been obvious to one of ordinary skill in the art to optimize the thickness of the article, which affects the durability of the article, since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. *In re Boesch*, 617 USPQ 215 (CCPA 1980).

Concerning claim 21, the phrase, "wherein the process for producing the extruded product comprises subjecting the solidified extruded product...after the extrusion and solidification" introduces process limitations to the product claim. For purposes of examination, product-by-process claims are not limited to the manipulation of the recited steps, only the structure implied by the steps. See MPEP 2113. In the present case, the recited steps imply a structure having a resin composition comprising 30 to 94% by mass of a thermoplastic resin (A), 5 to 40% by mass of a carbon precursor (B) having a volume resistivity of 10^2 to 10^{10} Ωcm and 1 to 30% by mass of a conductive filler (C) having a volume resistivity lower than 10^2 Ωcm . The reference suggests such a product because Nishihata discloses a resin composition comprising

40 to 98.5 wt% of a thermoplastic resin, 1 to 40 wt% of a carbon precursor having a volume resistivity of 10^2 to 10^{10} Ωcm and 0.5 to 30 wt% of at least one conductive filler having a volume resistivity lower than 10^2 Ωcm (page 13, lines 13-26 and page 14, lines 1-20).

4. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. U.S. Patent No. 6,545,081 teaches a resin composition comprising 40 to 98.5 wt% of a thermoplastic resin, 1 to 40 wt% of a carbon precursor having a volume resistivity of 10^2 to 10^{10} Ωcm and 0.5 to 30 wt% of at least one conductive filler having a volume resistivity lower than 10^2 Ωcm (page 13, lines 13-26 and page 14, lines 1-20). The reference does not teach the resin composition having a thickness or diameter exceeding 3 mm.

Response to Arguments

5. Applicant has filed a terminal disclaimer of prior Patent No. 7,198,734. The terminal disclaimer filed on August 13, 2009, disclaiming the terminal portion of any patent granted on this application which would extend beyond the expiration date of prior Patent No. 7,198,734 has been reviewed and is accepted. Therefore, the rejection made on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-6 of U.S. Patent No. 7,198,734, is withdrawn.

Applicant's arguments regarding the rejection made under 35 U.S.C. 103(a) as being unpatentable over Nishihata et al. (WO 00/343369) have been considered but are

unpersuasive. Applicant argues Nishihata does not disclose or suggest the newly added limitations regarding the process for producing the extruded product: "wherein the process for producing the extruded comprises: a step of feeding the resin composition to an extrusion forming machine...(ii) to solidify the extruded product." For purposes of examination, product-by-process claims are not limited to the manipulation of the recited steps, only the structure implied by the steps. See MPEP 2113. In the present case, the recited steps imply a structure having a resin composition comprising 30 to 94% by mass of a thermoplastic resin (A), 5 to 40% by mass of a carbon precursor (B) having a volume resistivity of 10^2 to 10^{10} Ωcm and 1 to 30% by mass of a conductive filler (C) having a volume resistivity lower than 10^2 Ωcm . The reference suggests such a product because Nishihata discloses a resin composition comprising 40 to 98.5 wt% of a thermoplastic resin, 1 to 40 wt% of a carbon precursor having a volume resistivity of 10^2 to 10^{10} Ωcm and 0.5 to 30 wt% of at least one conductive filler having a volume resistivity lower than 10^2 Ωcm (page 13, lines 13-26 and page 14, lines 1-20). Applicant further argues Nishihata does not disclose a thickness or diameter not smaller than 4mm. Although Nishihata does not disclose the exact thickness of the article, because the composition can be formed into various shapes, it would have been obvious to one of ordinary skill in the art for the article to be formed or molded into a shape having a thickness not smaller than 4mm. Given the teachings of Nishihata, including a composition that can be formed into various shapes, it would have been obvious to one of ordinary skill in the art, to determine the optimum thickness of the molded article. It also would have been obvious to one of ordinary skill in the art to optimize the thickness

of the article, which affects the durability of the article, since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. *In re Boesch*, 617 USPQ 215 (CCPA 1980).

6. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Conclusion

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Lawrence Ferguson whose telephone number is 571-

272-1522. The examiner can normally be reached on Monday through Friday 9:00 AM – 5:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Sample, can be reached on 571-272-1376. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/Lawrence Ferguson/
Patent Examiner, Art Unit 1794

/David R. Sample/
Supervisory Patent Examiner, Art Unit 1794